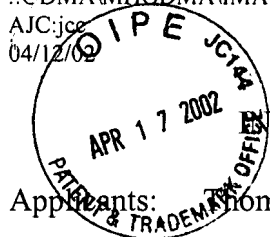


1645
#13/DS

TECH CENTER 1600/2900

APR 19 2002

RECEIVED



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Thomas Tuschl, Phillip D. Zamore, Phillip A. Sharp and David P. Bartel

Application No.: 09/821,832

Group Art Unit: 1645

Filed: March 30, 2001

Examiner: Not Assigned

Title: RNA Sequence-Specific Mediators of RNA Interference

CERTIFICATE OF MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to Assistant Commissioner for Patents, P.O. Box 2327, Arlington, VA 22202	
on	4.12.02
Date	Signature
Jenine Crump	
Typed or printed name of person signing certificate	

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
P.O. Box 2327
Arlington, VA 22202

Sir:

This Information Disclosure Statement is submitted:

☐ under 37 CFR 1.129(a), or

(First/Second submission after Final Rejection)

☒ under 37 CFR 1.97(b), or

(Within any one of the following time periods: three months of filing national application (other than a CPA) or date of entry of the national stage in an international application; or before the mailing date of a first office action on the merits in a non-provisional application, including a CPA, or a Request for Continued Examination).

☐ under 37 CFR 1.97(c) together with either:

☐ a Statement under 37 CFR 1.97(e), as checked below, or

☐ a \$180.00 fee under 37 CFR 1.17(p), or

(After the 37 CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

☐ under 37 CFR 1.97(d) together with:

☐ a Statement under 37 CFR 1.97(e), as checked below, and

☐ a \$180.00 fee under 37 CFR 1.17(p), or

(Filed after final action or notice of allowance, whichever occurs first, but on or before payment of the issue fee)

☐ under 37 CFR 1.97(i):

Applicant requests that the IDS and cited reference(s) be placed in the application filewrapper.

(Filed after payment of issue fee)

Statement Under 37 CFR 1.97(e)

- ☐ Each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement; or
- ☐ No item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Statement Under 37 CFR 1.704(d) (Patent Term Adjustment)

Applies to original applications (other than design) filed on or after May 29, 2000

- ☐ Each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.
- ☒ Enclosed herewith is form PTO-1449:
- ☒ Copies of the cited references are enclosed (AA; AR-AZ; AR2-AZ2; AR3-AZ3; AR4-AZ4; AR5-AZ5; and AR6-AT6).
- ☐ Copies of cited references are enclosed except those entered in prior application, U.S. Application No. [], to which priority under 35 U.S.C. 120 is claimed. [The earlier application contains copies of the cited references.]
- ☐ The listed references were cited in the enclosed International Search Report in a counterpart foreign application.
- ☐ The "concise explanation" requirement (non-English references) for reference(s) [] under 37 CFR 1.98(a)(3) is satisfied by:
- ☐ the explanation provided on the attached sheet.
 - ☐ the explanation provided in the Specification.
 - ☐ submission of the enclosed International Search Report.
 - ☐ submission of the enclosed English-language version of a foreign Search Report and/or foreign Office Action.
 - ☐ the enclosed English language abstract.

☐ Applicant requests that the following non-published pending applications be considered:

Examiner's
Initials

_____ U.S. Patent Application No. [], by [inventor(s)], filed [], Docket No.: []

_____ U.S. Patent Application No. [], by [inventor(s)], filed [], Docket No.: []

_____ U.S. Patent Application No. [], by [inventor(s)], filed [], Docket No.: []

Examiner

Date

☐ A copy of each above-cited application, including the current claims, is enclosed.

☐ A copy of each above-cited application, including the current claims, is enclosed, except those entered in prior application, U.S. Application No. [], to which priority under 35 U.S.C. 120 is claimed.

The Examiner is requested to return a copy of the above list of pending applications indicating which references were considered with the next office communication.

It is requested that the information disclosed herein be made of record in this application.

Method of payment:

☐ A check for the fee noted above is enclosed, or the fee has been included in the check with the accompanying Reply. A copy of this Statement is enclosed.

☐ Please charge Deposit Account 08-0380 in the amount of \$[]. A copy of this Statement is enclosed.

☒ Please charge any deficiency in fees and credit any overpayment to Deposit Account 08-0380.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By Anne J. Collins

Anne J. Collins

Registration No.: 40,564

Telephone: (978) 341-0036

Facsimile: (978) 341-0136

Concord, MA 01742-9133

Dated:

April 12, 2002

RECEIVED

TECH CENTER 1600/2900

APR 19 2002

PTO 149 REPRODUCED

INFORMATION DISCLOSURE CITATION
IN AN APPLICATION

APR 17 2002

April 12, 2002

(See several sheets if necessary)

ATTORNEY DOCKET NO.
0399.2008-002

APPLICATION NO.
09/821,832

APPLICANT
Thomas Tuschl, et al.

FILING DATE
March 30, 2001

GROUP
1645

U.S. PATENT DOCUMENTS

EXAM- INER INI- TIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE IF APPROPRIATE
	AA	5,908,779	01-JUN-1999	Carmichael, et al.	435	325	
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO
	AL						
	AM						
	AN						
	AO						
	AP						
	AQ						

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR	Fire, A., et al., "Potent and Specific Genetic Interference By Double-Stranded RNA in <i>Caenorhabditis elegans</i> ," <i>Nature</i> 391:806-811 (February 19, 1998)
	AS	Tuschl, T., et al., "Targeted mRNA Degradation By Double-Stranded RNA In Vitro," <i>Genes & Development</i> 13:3191-3197 (1999)
	AT	Kennerdell, J.R. and Carthew, R.W., "Use of dsRNA-Mediated Genetic Interference to Demonstrate that <i>frizzled</i> and <i>frizzled 2</i> Act in the Wingless Pathway," <i>Cell</i> 95:1017-1026 (December 23, 1998)

EXAMINER

DATE CONSIDERED

ECH CENTER 1600/2900

APR 19 2002

PTO-1449 REPRODUCED

INFORMATION DISCLOSURE CITATION
IN AN APPLICATION

APR 17 2002

April 12, 2002

(Use several sheets if necessary)

ATTORNEY DOCKET NO.
0399.2008-002

APPLICATION NO.
09/821,832

APPLICANT
Thomas Tuschl, et al.

FILING DATE
March 30, 2001

GROUP
1645

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AU	Montgomery, M.K. and Fire, A., "Double-Stranded RNA as a Mediator in Sequence-Specific Genetic Silencing and Co-suppression," <i>TIG</i> 14(7):255-258 (July 1998)
AV	Ngo, H., et al., "Double-Stranded RNA Induces mRNA Degradation in <i>Trypanosoma brucei</i> ," <i>Proc. Natl. Acad. Sci. USA</i> 95:14687-14692 (December 1998)
AW	Lohmann, J.U., et al., "Silencing of Developmental Genes in <i>Hydra</i> ," <i>Developmental Biology</i> 214:211-214 (1999)
AX	Clemens, M.J. and Williams, B.R.G., "Inhibition of Cell-Free Protein Synthesis by pppA ² p ⁵ A ² p ⁵ A: a Novel Oligonucleotide Synthesized by Interferon Treated L Cell Extracts," <i>Cell</i> 13:565-572 (March 1978)
AY	Williams, B.R.G., et al., "The Respective Roles of the Protein Kinase and pppA ² p ⁵ A ² p ⁵ A-activated Endonuclease in the Inhibition of Protein Synthesis By Double-Stranded RNA in Rabbit Reticulocyte Lysates," <i>Nucleic Acids Research</i> 6(4): 1335-1350 (April 1979)
AZ	Zhou, A., et al., "Expression Cloning of 2-5A-Dependent RNAase: A Uniquely Regulated Mediator of Interferon Action," <i>Cell</i> 72:753-765 (March 12, 1993)
AR2	Zhou, A., et al., "Interferon Action in Triply Deficient Mice Reveals the Existence of Alternative Antiviral Pathways," <i>Virology</i> 258:435-440 (1999)
AS2	Wianny, F. and Zernicka-Goetz, M., "Specific Interference With Gene Function By Double-Stranded RNA In Early Mouse Development," <i>Nature Cell Biol.</i> 2:70-75 (February 2000)
AT2	Gebauer, F., et al., "Translation Control of Dosage Compensation in <i>Drosophila</i> by Sex-lethal: Cooperative Silencing via the 5' and 3' UTRs of <i>msl-2</i> mRNA is Independent of the Poly(A) Tail," <i>The EMBO Journal</i> 18(21):6146-6154 (1999)
AU2	Hamilton, A. J. and Baulcombe, D. C., "A Species of Small Antisense RNA in Posttranscriptional Gene Silencing in Plants," <i>Science</i> 286:950-952 (October 1999)
AV2	Wagner, R. W. and Sun, L., Double-stranded RNA Poses Puzzle," <i>Nature</i> 391:744-745 (February 1998)
AW2	Sharp, P. A., "RNAi and Double-strand RNA," <i>Genes & Development</i> 13(2):139-140 (January 15, 1999)
AX2	Bass, B. L., "RNA Editing and Hypermutation by Adenosine Deamination," <i>TIBS</i> 22:157-162 (1997)
AY2	Cogoni, C. and Macino, G., "Gene Silencing in <i>Neurospora crassa</i> Requires a Protein Homologous to RNA-Dependent RNA polymerase," <i>Nature</i> 399:166-169 (May 1999)

EXAMINER

DATE CONSIDERED

PTO-1449 REPRODUCED

ATTORNEY DOCKET NO.

0399.2008-002

APPLICATION NO.

09/821,832

APPLICANT

Thomas Tuschl, et al.

FILING DATE

March 30, 2001

GROUP

1645

INFORMATION DISCLOSURE CITATION
IN AN APPLICATION

April 12, 2002

(Use several sheets if necessary)

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AZ2	Grishok, A., et al. "Genetic Requirements for Inheritance of RNAi in <i>C. elegans</i> ," <i>Science</i> 287:2494-2497 (March 2000)
AR3	Ketting, R.F., et al. "mut-7 of <i>C. elegans</i> , Required for Transposon Silencing and RNA Interference, Is a Homolog of Werner Syndrome Helicase and RNaseD," <i>Cell</i> 99:133-141 (October 1999)
AS3	Tabara, H., et al. "The <i>rde-1</i> Gene, RNA Interference, and Transposon Silencing in <i>C. elegans</i> ," <i>Cell</i> 99:123-132 (October 1999)
AT3	Smardon, A., et al., "EGO-1 is Related to RNA-directed RNA Polymerase and Functions in Germ-line Development and RNA Interference in <i>C. elegans</i> ," <i>Current Biology</i> 10(4):169-178 (February 2000)
AU3	Pal-Bhadra, M., et al., "Cosuppression of Nonhomologous Transgenes in <i>Drosophila</i> Involves Mutually Related Endogenous Sequences," <i>Cell</i> 99:35-46 (October 1999)
AV3	Fire, A., "RNA-triggered Gene Silencing," <i>Trends in Genetics</i> 15:358-363 (1999)
AW3	Sharp, P. A. and Zamore, P. D., "RNA Interference," <i>Science</i> 287:2431-2433 (March 2000)
AX3	Sijen, T. and Kooter, J. M., "Post-transcriptional Gene-silencing: RNAs on the Attack or on the Defense," <i>BioEssays</i> 22:520-531 (2000)
AY3	Bass, B. L., "Double-Stranded RNA as a Template for Gene Silencing," <i>Cell</i> 101:235-238 (April 2000)
AZ3	Hammond, S. M., et al., "Post-Transcriptional Gene Silencing By Double-Stranded RNA," <i>Nature Reviews/Genetics</i> 2:110-119 (February 2001)
AR4	Hammond, S.M., et al., "An RNA-Directed Nuclease Mediates Post-Transcriptional Gene Silencing in <i>Drosophila</i> Cells," <i>Nature</i> 404:293-296 (March 16, 2000)
AS4	Zamore, P.D., et al., "RNAi: Double-Stranded RNA Directs the ATP-Dependent Cleavage of mRNA at 21 to 23 Nucleotide Intervals," <i>Cell</i> 101:25-33 (March 31, 2000)
AT4	Bernstein, E., et al., "Role for a Bidentate Ribonuclease in the Initiation Step of RNA Interference," <i>Nature</i> 409:363-366 (January 18, 2001)
AU4	Elbashir, S.M., et al., "RNA Interference is Mediated By 21-and 22-Nucleotide RNAs," <i>Genes & Development</i> 15:188-200 (2001)
AV4	Caplen, N.J., et al., "dsRNA-Mediated Gene Silencing in Cultured <i>Drosophila</i> cells: A Tissue Culture Model For the Analysis of RNA Interference," <i>Gene</i> 252:95-105 (2000)

EXAMINER

DATE CONSIDERED

TECH CENTER 1600/2900

APR 19 2002

RECEIVED

PTO-1449 REPRODUCED

ATTORNEY DOCKET NO.
0399.2008-002APPLICATION NO.
09/821,832INFORMATION DISCLOSURE CITATION
IN AN APPLICATIONAPPLICANT
Thomas Tuschl, et al.

APR 17 2002

April 12, 2002

(Use several sheets if necessary)

FILING DATE
March 30, 2001GROUP
1645

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AW4	Kehlenbach, R.H., et al., "Nucleocytoplasmic Shuttling Factors Including Ran and CRM1 Mediate Nuclear Export of NFAT In Vitro," <i>J. Cell Biol.</i> 141(4):863-874 (May 18, 1998)
AX4	Kumar, M. and Carmichael, G.G., "Antisense RNA: Function and Fate of Duplex RNA in Cells of Higher Eukaryotes," <i>Microbiol. and Molec. Biol. Reviews</i> 62(4):1415-1434 (December 1998)
AY4	Wassebagger, M., "RNA-Directed DNA Methylation," <i>Plant Molec. Biol.</i> 43:203-220 (2000)
AZ4	Finnegan, E.J., et al., "Gene Silencing: Fleshing out the Bones," <i>Current Biol.</i> 11(3):R99-R102 (2001)
AR5	Kass, S.U., et al., "How Does DNA Methylation Repress Transcription?," <i>TIG</i> 13(11):444-449 (November 1997)
AS5	Razin, A., "CpG Methylation, Chromatic Structure and Gene Silencing--A Three-Way Connection," <i>EMBO Journal</i> 17(17):4905-4908 (1998)
AT5	Timmons, L. and Fire, A., "Specific Interference by Ingested dsRNA," <i>Nature</i> 395:854 (October 29, 1998)
AU5	Cogoni, C. and Macino, G., "Posttranscriptional Gene Silencing in <i>Neurospora</i> by a RecQ DNA Helicase," <i>Science</i> 286:2342-2344 (December 17, 1999)
AV5	Grant, S.R., "Dissecting the Mechanisms of Posttranscriptional Gene Silencing: Divide and Conquer," <i>Cell</i> 96:303-306 (February 5, 1999)
AW5	Catalanotto, C., et al., "Gene Silencing in Worms and Fungi," <i>Nature</i> 404:245 (March 16, 2000)
AX5	Hunter, C.P., "Gene Silencing: Shrinking the Black Box of RNAi," <i>Current Biol.</i> 10(4):R137-R140 (2000)
AY5	Hunter, C.P., "Genetics: A Touch of Elegance with RNAi," <i>Current Biol.</i> 9(12):R440-R442 (1999)
AZ5	Grishok, A., et al., "Genes and Mechanisms Related to RNA Interference Regulate Expression of the Small Temporal RNAs that Control <i>elegans</i> Development Timing," <i>Cell</i> 106:23-34 (July 13, 2001)
AR6	Tabara, H. et al., "RNAi in <i>C. elegans</i> : Soaking in the Genome Sequence," <i>Science</i> 282: 430-431 (October 16, 1998)
AS6	Ketting, R.F. and Plasterk, R.H.A., "A Genetic Link Between Co-Suppression and RNA Interference in <i>C. elegans</i> ," <i>Nature</i> 404:296-298 (March 16, 2000)
AT6	Ui-Tei, K., et al., "Sensitive Assay of RNA Interference in <i>Drosophila</i> and Chinese Hamster Cultured Cells Using Firefly Luciferase Gene as Target," <i>FEBS Letters</i> 479:79-82 (2000)

EXAMINER

DATE CONSIDERED

RECEIVED

APR 19 2002

FBI CENTER 1600/2900